EOD

BOMB SUIT SERIES III

EOD SUIT, HELMET & ACCESSORIES

USER MANUAL

Specifications, sizes & weights and for the complete equipment set

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MONDIAL DEFENCE SYSTEMS LIMITED

Bomb Suit - Series III

EOD Suit, Helmet & Accessories - User Manual

The Mondial Series III EOD Suit is the result of five years of development. Combining the positive input and suggestions we have had from our customers plus the ongoing developments from our own Research and Development team.

There remains one simple philosophy behind the suit and its accessories - "*Keep it simple*".

We offer the highest levels of performance and protection in a product that is user friendly, uncomplicated and requires the minimum of service and maintenance. It is designed for use in the field, in rugged and harsh environments.
We actively seek comment and constructive criticism of our product for what we learn from one benefits all.

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System

The Series III EOD Suit and Helmet comprises of the following units:

1.1 Helmet with integrated fan and communications.
1.2 Smock with remote controller and power supply and integrated wiring.
1.3 Hand protectors.
1.4 Spine protector.
1.5 Blast plates.
1.6 Groin protector.
1.7 Trousers.
1.8 Over shoes.
1.9 Carry bag back pack

Optional Equipment

1.10 Duplex Communication System
1.11 Cooling Suit

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Helmet – In Aluminium Case

2.1 Communication
- Helmet has in-built microphone and speakers.
- These are compatible with Mondial hardwire duplex system, or with two-way radios, when 'VOX' can be used.

2.2 Connector
- Helmet has a combined power and communication lead with a built in Emergency Amphenol quick disconnect plug which disconnects during Emergency Evacuation.

2.3 Fan
- Integrated in helmet.
- Speed: variable.
- Output: 0 –170 litres/minute.
- Boost: 210 litres/minute
- Running time: 3 hours

2.4 Visor
- Hardened, scratch resistant acrylic with polycarbonate backing. Due to the efficiency of the helmet fan misting is rare, but a spray on appliqué is provided for extreme situations

2.5 Internal Liner
- Fire resistant outer cover.
- Inner comfort foam.
- Outer shock absorbent.
- Sizing pads for medium and small provided.

2.6 Chinstrap
- Two chinstraps of different lengths are supplied to ensure the most secure and comfortable fit.

2.7 Automatic high level noise cut-out
- The ambient sound will be immediately mute if the ambient noise exceeds a preset level.

2.8 Ambient sound
- The internal speakers allow the operator to hear communications from the base station as well as ambient (environmental) sound. This is operator controlled by two easy to use volume controls on the remote controller.

2.9 Headlamp
- An adjustable headlamp is situated on the front of the helmet.
- This is powered by three AAA batteries. The headlamp is fitted with alkaline batteries and three rechargeable AAA NiCad batteries and a charger are also provided.

2.10 Low battery warning
- There is an audible low battery warning that will beep every 30 seconds when the battery drops to 11volts. This is when 25% of battery life remains or approximately 45minutes.

2.11 Emergency evacuation
- The helmet chinstrap has a quick release press stud [red tab] so the helmet may be discarded in an emergency.

For hygienic considerations a spare liner complete with microphone speakers and sizing pads is provided. This enables dual usage of the suit Additional liners can be purchased for multi operator use.

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Helmet (above)
Spare Helmet Liner sizing pads (centre)
Quick release Amphenol Connector (bottom right)
Aluminium case (bottom left)

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Smock
In heavy duty Cordura carry bag.

3.1. Smock
- Full all round protection to mid thigh.
- Multipack system for maximum flexibility.
- Arm protection is articulated.
- Separate hand protectors.

3.2. Blast plates
- Attached to the front of the smock with throat, chest and groin protection.
- Groin plate is articulated to allow ease of kneeling, bending etc.

3.3. Power supply
- Attached to right hand side of suit and position, adjustable to ensure optimum comfort to operator.

3.4. Remote controller
- Provides the operator with adjustment of the fan speed i.e. air flow in the helmet.
- Provides the operator control of the volume of the communications from the base station whether by hardwire duplex or two-way radio.
- Provides the operator control of the volume of the ambient (environmental) sound.
- Each control is positioned so the operator knows exactly which control he is touching.

3.5 Internal wiring
- The wiring from the power supply and from the remote controller to the helmet is integrated into the smock.

3.6 Emergency evacuation
- The suit is designed so that the operator can rapidly remove it within 20 seconds. The smock is equipped with two toggles on the right hand side which when pulled, allows the smock to fall away.

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Spine Protector

In separate compartment of the smock carry bag.

4.1 Horizontally articulated and providing protection from violent de-acceleration on either side of the spine.

4.2 Multi-layer foam laminate construction with progressively increasing de-acceleration properties.

4.3 Held in position with quick release elastic straps.

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Groin Protector
In trouser carry bag.

5.1 Lightweight separate protector for abdomen, groin and inner thighs.

5.2 Elasticated colour coded straps for ease of use.

5.3 Ergonomically designed for maximum comfort.

5.4 The groin protector is worn underneath the smock and therefore this area also has the protection provided by the smock which comes down to mid-thigh and the trousers which are in front of the groin protection. The combination provides extremely high protection.

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Trousers
In separate Cordura carry bag.

6.1 All round protection with extra frontal integrated thigh and shin protectors.

6.2 Overlapping groin protection.

6.3 Fire retardant zips with a quick release function.

6.4 Adjustable shoe cover flaps.

6.5 Adjustable braces, both by length and position to provide maximum comfort for the wearer.

6.6 Quick release zips [Red] are used, plus tabs [Red] on the braces which enable the trousers to be quickly discarded in an emergency.

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Overshoes
In trouser carry bag.

7.1 Fits over existing footwear, such as boots.

7.2 Integrates with the adjustable shoe cover provided on the trousers.

7.3 Quick release tabs [red] are incorporated to enable the overshoes to be removed in an emergency.

Blast Plates
In trouser carry bag.

8.1 The plates attach to the suit with buckles and accommodate the emergency release toggles so the smock and plates will come off as one unit

8.2 The groin plate is articulated to allow comfortable movement and kneeling.

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Power Supply

9.1 The power supply is provided in a pouch which is worn on the right hand side of the suit. The pouch is carried on a belt and can be positioned where the operator finds it to be most convenient.

9.2 The power supply is 12volt supplied by 10 x 1,2volt C cell rechargeable NiCad batteries.

9.3 The power supply will provide power to the helmet fan, communications for at least three hours at maximum fan speed

9.4 An audible battery low warning buzzer is incorporated, giving the operator ample time to change batteries if required.

9.5 A charger is provided for the power supply that can work from mains or 12vDC. Charging time 10 hours. The unit will not damage the batteries if left on for prolonged periods.

9.6 An emergency standard 8 x 1,5volt C cell battery holder and pack is supplied. This can be used with the Helmet or Cooling suit. Running time for the helmet is 2hrs 15 min at maximum fan speed. Running time for the cooling suit is 1hrs 30min at maximum pump flow rate.

Rechargeable NiCad battery pack

Emergency power supply

Intelligent NiCad battery charger

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Carry Bag / Back Pack

The two heavy duty nylon bags containing the smock, spine protector, trousers, overshoes, groin protector and blast plates are packed into a main transportation bag.

10.1 This can be used as a carry bag

10.2 It can be used as a back pack.

10.3 Built in wheels

10.4 It can be used as a ground sheet when opened up fully to unpack the suit.

EOD suit carry bag

Used as a back pack

EOD Suit in Trolley bag

Opens up as a ground sheet

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Duplex Hardwire Communications

11.1 Base Station: in aluminium case.

11.2 12v DC 4.5Ah rechargeable battery.

11.3 Headset with speakers and microphone

11.4 External speaker with on-off switch.

11.5 Output for digital recorder.

11.6 Battery status indicator.

11.7 Built-in 220v AC. charger with connecting cord

11.8 Input for 12v DC charger.

11.9 Socket for connecting wire to reel.

11.10 Connecting wire to reel.

11.11 Reel with rewind guide.100m wire (with option for 125m) and connecting plug to fit into the remote controller on the EOD smock.

11.11 The reel comes standard with a Slip-ring function allowing operator to be in communication throughout deployment and retrieval.

11.12 Webbing guides are provided on the smock to lead the wire to the remote controller.

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Cooling Suit

12.1 One piece fire resistant garment with cooling tubes and external connectors. It is worn as close to the body as possible to obtain the maximum benefit.

12.2 Head hood with connectors. These connect to corresponding connectors on the neck of the main garment.

12.3 External pump and ice bottle container in a self-contained carry bag which is attached to the left hand side of the smock with straps and Velcro provided.

12.4 Self contained NiCad battery power supply identical and interchangeable with the suit power supply. Running time at maximum flow rate 2 hours 30 min

12.5 The emergency standard C cell battery pack can be used. Running time at maximum flow rate 1 hour 30 min.

Materials

13.1 Outer cover
AdvanceNomex IIIA with anti-staticKermel

13.2 Velcro and Webbing
Fire resistant

13.3 Ballistic materials
Aramid

13.4 Blast plates
Composite materials

13.5 External Zips
Brass/ Nomex

13.6 Visor
Hardened Acrylic/polycarbonate laminate

13.7 Cooling Suit
Fire resistant Kermel

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EOD

Helmet Fan

DELIVERY	LITRES PER MIN	CU IN PER MIN
Normal	0-170	10375
Boost	210	12816

Cooling Suit Pump

DELIVERY	LITRES PER MIN	GALLS PER MIN
Flow Rate	2.2	0.58

Duplex Communication System

Power supply. Rechargeable 4.5Ah 12v dc battery.

WEIGHT	KG	LBS
Base Station	5.2	11.5
Reel	14.3	31.5

Protection

V50 as per STANAG 2920 with 17 grain fragment.

ITEM	V50 M/S	V50 FT/SEC
Helmet	480	1574
Helmet front	600	1968
Visor	800	2624
Helmet beard	480	1574
Collar front	610	1859
Collar front centre	1000	3280
Collar rear	480	1574
Sleeves front	565	1853
Sleeves rear	480	1574
Smock front	610	2001
Chest plate “V0”	1800+	5905+
Groin plate “V0”	1800+	5905+
Smock back	480	1574
Groin protector	480	1463
Trousers thigh	700	2296
Trousers shin	700	2296
Trousers rear	340	1115
Overshoes	450	1476
Hand protector	450	1476

EOD Suit Sizing

	HEIGHT		WEIGHT	
	cm	feet	kgs	lbs
Small	168	5’5”	64	141
Medium	176	5’8”	76	167
Large	186	6’1”	92	202

Unit Weights EOD Suit

	KG	LBS
Small	22	48
Medium	25	55
Large	28	62
Helmet	4.7	10.4

Cooling Suit

	KG	LBS
Small	1	2
Medium	1.2	2.6
Large	1.2	2.6
Pump Assembly with Ice Bottle	4	8.9

Power Supply

10 x1.2v C cell rechargeable NiCad batteries in series. 12v dc

Emergency Power Supply

8x ‘C’ cell 1.5volt batteries in series. 12v dc

WEIGHT	KG	LBS
Power Supply	1.0	2.2
Emergency Power Supply	0.63	1.38

OPERATING TIME	POWER SUPPLY	EMERGENCY POWER SUPPLY
Helmet	3 hrs	2 hrs 15 mins
Cooling Suit Pump	2 hrs 30 mins	1 hr 30 mins

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